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Title:
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Maximum Match 100%
Listing first 45 summaries
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2780
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Pred. No. is the number of results predicted by chance to have a score greater than or equal to the score of the result being printed, and is derived by analysis of the total score distribution.

SUMMARIES

| 45 59.4 2.1 158167 2 AC03410 | 9.4 2.1 62164 2    | .6 2.1 101509 2 AC02735 | 9.8 2.2 170102 9 AC008 | 41 59.8 2.2 120091 2 | 60.2 2.2 201676    | 39 60.6 2.2 174133 8 | 60.6 2.2 140176 2  | 37 60.8 2.2 167968 2 | 36 60.8 2.2 51274 2 AC023 | 61 2.2 245802 2 ACOU | 61.2 2.2 71559 2 AC0910 | 62 2.2 7218 6 | 63.4 2.3 321003 2 PFMAL4 | 31 63.6 2.3 207420 2 | 64.2 2.3 87256 2 AC0137 | 29 65.6 2.4 1141 6 AX08 | 67.8 2.4 1141 6 AX0837 | 99.4 3.6 377 6 AX0706 | 104.6 3.8 1517 9 AF1255 | 25 126.2 4.5 177720 9 | 126.2 4.5 168717 2 | 211.4 7.6 397 6 AX0701 | 217.4 7.8 220 11 | 7 11.8 157063 2 | 20 327 11.8 136555 2 | 332.6 12.0 205662 9 | 8 384,4 13,8 403 6 | 17 411 14.8 422 6 P | 414.4 14.9 433 11 | 23                 | 14 513.8 18.5 685 6 | 554.6 19.9 136823 9 | 12 1003.8 36.1 232903 2 | 1101.6 39.6 2276 9 | 94.2 43.0 163889 2 | 194.2 43.0 163031 9 | 43.0 123331 9 A | 44.5 2309 10 MM | 55.3 2458 10       | 76.2 236236 2 | 2456 88.3 2460 9 AF16087 | (88.4° 2474 9 AF16 | 8 (25.3) 2719      | 780-100:0          | <br>No. Score Match Length DB ID |  |
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|                              | AC068512 Homo sapi | 7353 Homo               | 79 Homo                | AC012684 Homo sapi   | AC090647 Mus muscu | 31 Guill             | AC016411 Homo sapi | 98 Homo              | AC023454 Homo sapi        | 79 Plasmo            | w                       | Se            | 5476                     | 84 Mus mu            | 54                      | 4                       | 44                     | 62 Sequer             | 31 Homo                 | 14 Homo s             | AC024683 Homo sapi | AX070116 Sequence      | S                | 9 Home          | 9 Homo               | N                   | 9                  | 042 Sequence        | SHGC-             | ACO74175 Mus muscu | 7 Sequ              | 3 Homo s            | 1 Rattu                 | 69 Homo            | 58 Homo            | 7 Homo              | 4 Homo          | ¥               | AF292400 Cricetulu |               | <b>7</b> 6 Homo          | re                 | AB028070 Homo sapi | AB028069 Homo sapi | <br>Description                  |  |

## ALIGNMENTS

| AUTHORS                   | REFERENCE           | JOURNAL                          |                 |   | TITLE  |                        | AUTHORS  | REFERENCE |  |   | ORGANISM     | SOURCE                                     | KEYWORDS                     | VERSION               | ACCESSION | DEFINITION   | LOCUS                                 | AB028069 | RESULT 1 |
|---------------------------|---------------------|----------------------------------|-----------------|---|--|------------------------|--|-----------|--|---|--------------|--|------------------------------|-----------------------|-----------|--|---------------------------------------|----------|----------|
| Masai, H. and Kumagai, H. | 2 (bases 1 to 2780) | Mol. Cell. Biol. (1999) In press | Mammalian Cells | Human Cdc7-Related Kinase and Is Essential for Gl/S transition in | A Novel Growth- and Cell Cycle-Regulated Protein, ASK, Activates | Arai, K. and Masai, H. | Kumagai, H., Sato, N., Yamada, M., Mahony, D., Seghezzi, W., Lees, E., | 1 (sites) | Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo. | Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; | Homo sapiens | Homo sapiens HeLa cDNA to mRNA, clone:H37. | activator of S phase Kinase. | AB028069.1 GI:4996095 | AB028069  | Homo sapiens mRNA for activator of S phase Kinase, complete cds. | AB028069 2780 bp mrna Pri 03-JUN-1999 |          |          |

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Submitted (28-MAY-1999) to the DDBJ/EMBL/GenBank databases. Hisao Submitted (28-MAY-1999) to the DDBJ/EMBL/GenBank databases. Hisao Masai, Institute of Medical Science, University of Tokyo, Department of Developmental Biology; 4-6-1 Shirokanedai, Minato-ku, Department of Developmental Biology; 4-6-1 Shirokanedai, Minato-ku, Tokyo 108-8639, Japan (E-mail:hitsaoeims.u-tokyo.ac.jp, Tel:81-3-5449-5631, Fax:81-3-5449-5424)
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DSLPSGKIHRKVKILLFRANEFNAFEFITQEENGLCSSFVQSLDLFQT

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conserved in Dbf4-related molecules. Amino acid 201-218 is
a putative bipartite nuclear localization signal. Amino
acid 101-120 and 552-564 are two putative PRST-like
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Homo sapiens
AB028070
                                                                                                                                                                                                                                                                                                                                                                                                                 Submitted (28-MAY-1999) to the DDBJ/EMBL/GenBank databases. Masai, Institute of Medical Science, University of Tokyo, Department of Developmental Biology; 46-1 Shirokanedai, Mil Tokyo 108-8639, Japan (E-mail:hisao@ims.u-tokyo.ac.jp, Tel:81-3-5449-5661, Fax.81-3-5449-5424)
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Homo sapiens HeLa cDNA to
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                                                                                                                                                                                                                                                                     /clone="H37"
/map="7q21"
518. .1222
                                                                                                                                      /gene="ASK/ H37 (huDbf4)"
/note="C-terminally truncated due to alternative splicing.
an alternative splicing variant of ASK, a regulatory
subunit for huCdC7 kinase. This protein could bind to
huCdC7 but may not able to activate its kinase activity."
/codon_start-1
                                                                                                                                                                                                                                     /gene="ASK, 518. .1222
           /translation="MNSGAMRIHSKGHEQGGIQVKNEKNRPSLKSLKTDNRPEKSKCK PLWGKVFYLDLPSVTISEKLOKDIKDLGGRVEBELSKDISYLLSKKEAKFAQTLGRI SPVPSPESAYTAETTSPHPSHDGSSFKSPDTVCLSRGKLLVEKAIKDHDFIPSNSILS NALSWGVKILHIDDIRYIEQKKKELYLLKKSSTSVRDGKRVGSGAQKTRTGRLKKPFVKVEDMSQSPAVHLM"
                                                                                         /product="activator of S
/protein_id="BAA78327.1"
/db_xref="GI:4996098"
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/db_xref="taxon:9606"
/cell_type="HeLa"
/chromosome="7"
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1. .2719
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|                                    |          | Qy 961 ggaccatgattttattccttcaaatagtatattatcaaatgccttgtcatgggagtaaa 1020   |
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| TCTGTACATGTTTCTGATTTCAGTA          | ם מם     | Qy 901 taagtcaccagacacagtgtgtttaagcagaggaaaattattagttgaaaaagctatcaa 960<br>   |
| 1860 ATTAAGTGAAAATGACTTAGAAGAACT   | Db<br>Qy | Qy 841 agaatctgcatatactgcagaaaccacttcacctcatcccagccatgatggaagttcatt 900   |
|                                    | ДЬ<br>Оу | 0 m   |
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|                                    | Db Ov    | QY 661 aaaagtattttaccttgacttaccttctgtcaccatatctgaaaaacttcaaaaggacat 720   |
| 20 TGA                             | Db -     | Oy 601 totgaaatototgaaaactgataacaggccagaaaaatcoaaatgtaagccacttttgggg 660  |
|                                    | Ov Ov    | Oy 541 ccacagtaaaggacatttccagggtggaatccaagtcaaaaatgaaaaaaacagaccatc 600   |
| 00 GAA                             | Db Oy    | Qy 481 ttctccggacccagcatgtaggtgccgggcgactgccatgaactccgggagccatgaggat 540  |
| <br> 440 TGA<br> 561 qaa           | Ov Db    | Qy 421 cggccgtcctgtcaacaggccgggggaagccgtgctttcgcgggctgcccggtgcgacact 480  |
| <br> 380 TCA<br> 501 tga           | Db<br>Qy | Qy 361 ccgacctgcagacgcggtacctctactgcgtagaggccgtagctggcggaaggagagag 420  |
| 320 AGAG                           | рь<br>Оу | Qy 301 ctcgtttgtgctttgcgccttcctcctccgcgccttggagccggatccggccccggaaac 360   |
| 260                                | Db<br>Qy | Oy 241 cgcgcgtatcggcgcgcgggccgcgtgacgcgttttcaaatcttcaaccgccgcagccca 300   |
|                                    | OV Ov    | Qy 181 ggcaggcacgaggggcgagcgcgaggcgcgggggcacggcgcgtggcgtgagacggggggg 240  |
| 119811981198                       | Db<br>Qy | Qy         121 ggccagagcgaggcgcgagaanaggacggcgtgagggggggggg   |
|                                    | QQ<br>da | Oy 61 gtctgagactgagaggaacggaatggaggcggggtagaggggggaaacacaacctgcag 120<br>   |
|                                    | QQ D L   | Qy 1 aattoggcacgagctotottgaggctgcgcaagacctgaagcggcggaccgagagcccgg 60  |
| 1021 aattootoataattgatgacattagatac | 0y<br>1; | Query Match 95.3%; Score 2648; DB 9; Length 2719;<br>Best Local Similarity 97.8%; Pred. No. 0;<br>Matches 2719; Conservative 0; Mismatches 0; Indels 61; Gaps |
| 1                                  |          | BASE COUNT 932 a 522 c 607 g 658 t  |

| 2100         | . agatactgtgctttttccagcaaaggatctcaaggaaaaggaccttcattca              | 2041         | γQ       |
|--------------|---|--------------|----------|
| 1979         | ATCTGTACATGTTTCTGATTTCAGTACAGATAATAGTGGATCTCAACCAAAACAGAAGT         | 1920         | Дb       |
|              | atctgtacatgtttctgatttcagtacagataatagtggatctcaaccaaaacagaagtc        | 1981         | VΩ       |
| 1980<br>1919 | attaagtgaaaatgacttagaagaactaagggtagatcactataaatgtaacatacaggc<br>    | 1921<br>1860 | Qy<br>Db |
| 1920<br>1859 | tacacagotacototacataaaaacaaacaggaatgcattottgacatttocgaacacac<br>    | 1861<br>1800 | dq<br>qo |
| 1860<br>1799 | gaaaatgagtaataaatgttccatgttaagtacagctgaagatgacataagacagaattt<br>    | 1801<br>1740 | dd<br>Yo |
| ω 0          | gctcctgtttatttcagagcccatcccccacccttcaaatgaattgagagggcttaatga<br>    | 1741<br>1680 | dq<br>VQ |
| 7 4          | tgatacaacagtgaaggagcagaatttcctgtataaagagacccaggaaactgaaaaaaa<br>    | 1681<br>1620 | dq<br>VQ |
| 1 6          | gactgascasaggasaaagtggaattgcascatatttctcagasagattgccaggasga<br>     | 1621<br>1560 | Db Qy    |
| 1620<br>1559 | gaaaagaataaaatacagtgttggatccctttctcctgtttctgcaagtgtcctgaaaaa<br>    | 1561         | Db Db    |
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| 1440<br>1379 | agagaagaagaaaaaaggatattgtgaatgttgcttgcagaaatatgaagatctagaaac<br>    | 1381<br>1320 | ОУ       |
| 1380<br>1319 | actaagaatccaaacagatggcgataagtatggtggaacctcaattcaactccagttgaa<br>    | 1321<br>1260 | Оу       |
| 1320<br>1259 | gccctgcagtccatttgatgtagacaagccatctagtatgcaaaagcaaaactcaggttaa :<br> | 1261<br>1200 | Фр       |
| 1199         |   | 1198         | Db       |
| 1260         | taggocattttatottoagotgacoaatatgoottttataaattattotatto               |              | Qy       |
| 1200<br>1197 | aaaaacaagaacaggaagactcaaaaagccttttgtaaaggtggaagatatgagccaact :      | 1141<br>1141 | 40<br>VQ |
| 1140<br>1140 | actcaagaaatcaagtacttcagtaagagatgggggcaaaagagttggtagtggtgcaca :      | 1081<br>1081 | D Qy     |
| 1080         | aattetteatattgatgacattagatactacattgaacaaagaaaaaagagttgtatti         | 1021         | pb dy    |
| 1020         |   | 961          | Db       |

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Initiation of DNA Replication
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AF160249
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 Direct Submission Submitted (17-JTW-1999) Molecular Biology and Virology Laboratory, The Salk Institute, 10010 North Torrey Pines Road, La Jolla, CA 92037, USA
                                                                                                                                                     Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
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SOURCE ORGANISM VERSION KEYWORDS

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| . 4       | 80 TGATACAACAGTGAAGGAGCAGAATTTCCTGTATAAAGAGACCCAGGAAACTGAAAAAAA  | Db 1:          |
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| 0         | 01 tgatattgtatctaagttagtttttgactttgtggaatatgaaaaggacacacctaaaaa 1  | -              |
| منز       | 40 TCACCTTCTAAGTGAGCAACACAGAAACTTTGCACAGAGTAACCAGTATCAAGTTGTTGA  | Db 11          |
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| 99        |  | Db 4           |
| 200       | 41 aaaaacaagaacaggaagactcaaaaagccttttgtaaaggtggaagatatgagccaact 1  | ۰              |
| 39        | 80 ACTCAAGAAATCAAGTACTTCAGTAAGAGATGGGGGCAAAAGAGTTGGTAGTGGTGCACA 8  |                |
| 140       | R1 actomagamatcamagtmottcmgtmmgmagagggggmmmagagggggggggggggggg   | ·              |
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REFERENCE AUTHORS TITLE

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RESULT 4
AF160876
LOCUS
DEFINITION
ACCESSION
VERSION
KEYWORDS
SOURCE
ORGANISM human.

Homo Sapiens

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;

I (bases 1 to 2460)

Hollingsworth, R.
2 (bases 1 that interact with the human Cdc7 protein

Unpublished 2 (bases 1 to 2460)

Hollingsworth, R.
Direct Submission
Submitted (19-JUN-1999) Genomic Sciences, GlaxoWellcome, Inc., Five AF160876 2460 bp mRNA PRI 22-JUL-1999 Homo sapiens DBF4-like protein (DBF4) mRNA, complete cds. AF160876 AF160876.1 GI:5566280

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Smith, D.R.
                                            Unpublished
                                                                                                  Genome Therapeutics Corporation Sequencing Center: Human Genome
                                                                                                                            Smith, D.
                                                                                                                                           Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalla; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 236236)
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HTG; HTGS_PHASE1; HTGS_DRAFT; HTGS_FULLTOP; HTGS_ACTIVEFIN
                                                                                                                                                                                                                                                                                                                                                           ACO18977 236236 bp DNA HTG 26-C
HOMO Sapiens chromosome 10 clone RP11-386C23, WORKING
SEQUENCE, 12 unordered pieces.
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Submitted (25-DEC-1999) Genome Therapeutics Corporation, 100 Beaver Street, Waltham, MA 02453, USA
On Jul 26, 2001 this sequence version replaced g1:14091812.

Genome Center
Thorapoutics Corporation
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2567. .4025
                    /note="assembly_name:Contig17"
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1247. .2466
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/clone_lib="RPCI-11"
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/note-"assembly_name:Contig18'
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1246: gap of unknown length
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5165: contig of 1040 bp in length
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5270: contig of 1044 bp in length
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7521: contig of 1143 bp in length
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7521: contig of 1640 bp in length
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Chemistry: Dye-terminator Big Dye; 100% of reads
Assembly program: Phrap; version 990315
Consensus quality: 228735 bases at least 040
Consensus quality: 230209 bases at least 020
Consensus quality: 231209 bases at least 020
Consensus quality: 231209 bases at least 020
Consensus quality: 23120 bases; sum-of-contigs
Quality coverage: 6.3x in 020 bases; sum-of-contigs
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                    CTTGACTTACCTTCTGTCACCATATCTGAAAAACTGCAAAAGGACATTAAGGATCTGGGA 218061
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clone_end:SP6"
a 44567 c 46458 g 74094 t
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               /note="assembly_name:Contig22"
13464 106707
/note="assembly_name:Contig23
clone_end:T7"
106808 236236
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     8817. .10307

/note="assembly_name:Contig20"

10408. .11913

/note="assembly_name:Contig21"

12014. .13363
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92.2%;
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Pred. No. 0;
0; Mismatches
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| 2173            | ctgataacaataaacagttcacaagagcacctaactgttcaggcaaaggctccattccat              | 2114           | Ωу |
|-----------------|---|----------------|----|
| 216809          | ATTTACTCATGATTC   | 216868         | Д  |
| 2113            |   | 2054           | Ωу |
| 2053            | totgatttoagtacagataatagtggatotoaaccaaaacagaagtoagatactgtgott              | 1994           | Qу |
| 216869          |   | 216928         | дь |
| 1993<br>216929  | gacttagaagaactaagggtagatcactataaatgtaacatacaggcatctgtacatgtt              | 1934<br>216988 | Оу |
| 1933            | Ctacataaaaacaaacaaggaatgcattcttgacatttccgaacacacac                        | 1874           | Qy |
| 216989          |   | 217048         | Db |
| 1873            | aaatgttccatgttaagtacagctgaagatgacataagacagaattttacacagctacct              | 1814           | оу |
| 2170 <b>4</b> 9 |   | 217108         | рь |
| 1813            | toagagcccatcccccacccttcaaatgaattgagagggcttaatgagaaaatgagtaat              | 1754           | Qy |
| 217109          |   | 217168         | Db |
| 1753            | agggagcagaatttcctgtataaagagacccaggaaactgaaaaaaagctcctgtttatt              | 1694           | Qy |
| 217169          |   | 217227         | Db |
| 1693            | gaaaagtggaattgcaacatatttctcagaaagattgccaggaagatgatacaacagtg               | 163 <b>4</b>   | Qy |
| 217228          |   | 217287         | Db |
| 1633            | tacagtgttggatccctttctcctgtttctgcaagtgtcctgaaaaagactgaacaaaag              | 1574           | Оу |
| 217288          |   | 217347         | Db |
| 1573            | aagttagtttttgactttgtggaatatgaaaaggacacacctaaaaagaaaagaataaaa              | 1514           | Qy |
| 217348          |   | 217354         | Db |
| 217353          |   | 217354         | Dβ |
| 1513            | $\tt gag caa cacaga a a ctttg cacaga g taaccag tatca a g ttg ttg a tg a $ | 1454           | Qγ |
| 1453            | aaaggatattgtgaatgttgcttgcagaaatatgaagatctagaaactcaccttctaagt              | 1394           | Qy |
| 217353          |   | 217402         | Db |
| 1393            | acagatggcgataagtatggtggaacctcaattcaactccagttgaaagagaagaaga                | 1334           | Qy |
| 217403          |   | 217462         | Db |
| 1333            | Lttgatgtagacaagccatctagtatgcaaaagcaaactcaggttaaactaagaatccaa              | 1274           | Qу |
| 217463          |   | 217522         | Дъ |
| 1273            | tatetteagetgaceaatatgeettttataaattattetatte                               | 1214           | Qy |
| 217523          |   | 217582         | Db |
| 1213            | ggaagactcaaaaagccttttgtaaaggtggaagatatgagccaactttataggccattt              | 1154           | Qy |
| 217583          |   | 217642         | Db |
| 1153            | agtacttcagtaagagatggggcaaaagagttggtagtggtgcacaaaaaacaagaaca               | 1094           | Qy |
| 217643          |   | 217702         | dd |
| 217703          |   | 217760         | Db |

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REFERENCE
AUTHORS
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                                                          JOURNAL
                                                                                      AUTHORS
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Cricetulus griseus DBF4/ASK mRNA, complete cds.
AF292400
                                                                                                                                      1 (bases 1 to 2458)

Guo,B. and Lee,H.

Gloning and characterization of Chinese hamster homologue of yeast DBF4 (ChDF4)
                           2 (bases 1 to 2458)
Lee, H. and Guo, B.
Direct Submission
Submitted (02-AUG-2000) Research, Northeastern Ontario Regional
Submitted (02-AUG-2000) Lake Road, Sudbury, ON P3E 5J1, Canada
Location/Qualifiers
                                                                                                                                                                                                                         Cricetulus griseus
Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Cricetinae;
                                                                                                                   Gene 264 (2), 249-256 (2001)
21147935
                                                                                                                                                                                                                                                                    Chinese hamster
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/organism-"Cricetulus
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/product_"DBF4/ASK"
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naltwovkilhiddirvieoknelcsleksstsvendsokneptigoveneknepsiks
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vedpvexendpekknelksvegsessvenvlknepeksklolepifokdmesonogi
pelfigordiokedikveneknilinnildorvodsverperscopvshlspenslopk
polppykredgedildvsehkliinnildorvodsverperscopvshlspenslopk
ltpadttheskollepyfghhsdlvtlatskepltvakstpescopophecotte
ntdnildoknelpyfghhsdlvtlatskepltvakstpescopophecotte
ntdnildoknelpyfghhsdlvtlatskepltvakstpescopophecotte
potsekspelgetsverenscloudvudvædensssllstfesspeakstpige*
qtsekspelgetsverenscloudvudvædensssllstfesspeakstpige*
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195. .2225
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79.4%;
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pred. No. 7.9e-282;
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                                                                         acttaga---agaactaagggtagatcactataaatgtaacatacaggcatctgtacatg
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ATTTTTCAGCAAAAGATTTACAAGAAAAGGACCTTCATTTTGTGTTTGGTCATGATTCTG
                                                          TTTCTCATCTCAGTCCAGAAAATAGTCTACCCCAACCAAAATTAACAGCAGATACTACAC
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                                                                                                                                                                  MMDBF4 2309 | Mus musculus mRNA AJ003132 AJ003132.1 GI:6000 DBF4-related prote
                                     2 (bases 1 to :
Lepke,M.
Direct Submission
Submitted (17-DEC-1997) Institute
Wuerzburg D-97074, Germany
Location/Qualifiers
                                                                    Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Rodentia; Sciurognathi; Muridae; Murinae; Mus I (bases 1 to 2309)
Lepke, M., Putter, V., Staib, C., Kneissl, M., Berger, C., Hoehn, K., Nanda, I., Schmid, M. and Grummt, F. Identification, Characterization and chromosomal localization of the cognate human and murine DBF4 genes
Mol. Gen. Genet. 262 (2), 220-229 (1999)
                                                                                                                                                             house mouse.
                                                              39444905
                                                                                                                                                   musculus
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                                                    2309)
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for DBF4-related
                       of Biochemistry,
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CDS gene source

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Query Match 44.5%; Score 1236; DB 10; Best Local Similarity 73.6%; Pred. No. 1.1e-224; Matches 1713; Conservative 0; Mismatches 570;
1045 atactacattgaacaaaagaaaaagagttgtatttactcaagaaatcaagtacttcagt 110
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                                   TAGTATATTATCAAATGCCTTATCATGGGGAGTAAAGATTCTTCATATTGATGACATTCG 621
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PLWGKIFYLDLPSTTICEKLQKDTKELGGRVEEFLSKDISYEVSNKKEAKYAQTLGKY 
PLWGKIFYLDLPSTTICEKLQKDTKELGGRVEEFLSKDISYEVSNKKEAKYAQTLGKY 
PLWGKIFYLDLPSTTICEKLQKDTKELGGRVEEFLSKDISYEVSNKKEAKYAQTLGKY 
SPPVBSESAYTAETTSPHPSHDGSSEKSODRVCLSRGKLABKAVKHDETFANSTILS 
NALSWGVKILHIDDIRYYIEQKKKALSALKKSASGKDAGKKAGPGIQKTETGGRLKKP 
FLKVEDVNRCYREFYLQLESLPCTRYFLQKPCSPFDIEKSSVQKQAQFKLRINMDGD 
FCKOGTEVQLQLKEKRKKGYCECCLQKYEDLFTHLLSEKRRNFAQSDGVOVDDIVSGUV 
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VRMLLGQQKANAEPSAELDKKRTEYLPAHEDRTGGSPVQSLLDLFQTSEEKSEFLGFT 
GYTENSGICDYNLDTWEEENSTLLSTFFSSPSTSAFVGF**

140 a 466 c 526 g 577 t
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95. .2086
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/db_xref="taxon:10090"
95. ..2086
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/protein_id="CAB56847.1"
/db_xref="GI:6006563"
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/function="involved in initiation of DNA replication"
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TITLE
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                                                                                                                                       University, 3 (bases 1
                                                                                                                                                                  Direct Submission
Submitted (20-JUN-1998)
                                                                                                                                                                                                                                                                          Eukaryota; Metazoa; Chordata; Mammalia; Eutheria; Primates; 1 (bases 1 to 123331)
                                                                         Submitted (03-FEB-2000) Department of University, 4444 Forest Park Avenue,
                                                                                                                                                                                                   Waterston, R.
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                              Center: Washington University Genome Center code: WUGSC
Web site: http://genome.wustl.edu/gscContact: sapiens@watson.wustl.edu
                                                                                                       Submission
                                                            Genome Center
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CTB-135C18 from
                                                                                                                                                     Department of Park Avenue, S
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Center project name: H_RG135C18
                            Summary Statistics
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NOTICE: This sequence may not represent the entire insert of this clone. It may be shorter because we only sequence overlapping clone sections once, or longer because we provide a small overlap between neighboring data submissions.

all regions were double stranded or sequenced with an alternate chemistry; an attempt was made to resolve all sequencing problems, such as compressions and repeats; all regions were covered by sequence from more than one subclone; and the assembly was This sequence was finished as follows unless otherwise noted: confirmed by restriction digest.

The sequence of this clone was established as part of a mapping and sequencing collaboration between the NHGRI Chromosome 7 Mapping Project (Eric D. Green, Director), John D. McPherson in the Department of Genetics (Mashington University), and the Washington University Genome Sequencing Center. For additional information about the map position of this sequence, see http://www.nhgri.nih.gov/DIR/GTB/CHR7, send MAPPING INFORMATION: The sequence of this and

mailto:egreen@nhgri.nih.gov , or see http://genome.wustl.edu/gsc

## SOURCE INFORMATION:

Clone CTB-135C18 is from the first release of the human BAC l CITB-9785K-B. The library contains cloned DNA from the male fibroblast cell line 9785K. See: Shizuya et al., Proc. Natl Acad. Sci. USA 89:8794-7 (1992); U-J. Kim et al., Genomics 34 (1996). This clone is available from Research Genetics, Inc. (1996). This .....(http://www.resgen.com).
VECTOR: pBeloBAC11
~~1~orampheni

chloramphenicol

clone is at ba of CTB-135C18. NEIGHBORING SEQUENCE INFORMATION:
The clone sequenced to the left is RP5-1189K17; the clone sequenced to the right is CTB-60N22, 200 bp overlap. Actual start of this clone is at base position 1 of CTB-135C18; actual end is at 123138

FEATURES source repeat\_region /rpt\_family="Alu" 3083. .3134 /rpt\_family="MaLR" 5762. .5939 /rpt\_ 3786. /rpt\_family="MaLR" 3136. .3664 /rpt\_family="MIR" 4882. .5225 1466. /rpt\_family="MER2\_type" 235, ..322 /rpt\_family="MaLR" 4476. .4714 /rpt\_family-"MaLR" 3891. .4128 'rpt\_family="Alu" clone\_lib-"CITB-978SK-B" /map-"7q21" /organism="Homo sapiens" /db\_xref="taxon:9606" rpt\_family="MER1\_type" rpt\_family-"MIR" rpt\_family-"MER2\_type" 'clone-' ocation/Qualifiers \_family="Retroviral" .3855 1636 'CTB-135C18"

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| Oy 1923 taagtgaaaatgacttagaagtaactaggatgactcaggatgactcaggatgactcaggatgactcaggatgactcaggatgactcaggatgactcaggatgactcaggatgactcagatgactcagatgactcagactagactagatgatcaggataatagtggatctcaaccaaaacagaagtcag 2042  Oy 1983 ctgtacatgtttctgatttcagtacagataatagtggatctcaaccaaaacagaagtcag 2042  | datches 1196; Conservative 99.7%; Pre datches 1196; Conservative 0; datches 1196; Conservative 0; 1563 abagasatacagtgttggatcca   | ## Catter   Act   Act  |

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Smith, D.
                                                                           Smith,D.R.

Direct Submission

Submitted (24-AUG-2000) Genome

Street, Waltham, MA 02453, USA

On Aug 24, 2000 this sequence v
                                                                                                                                Smith, D.R.

Direct Submission

Submitted (03-MAR-2000) Genome

Street, Waltham, MA 02453, USA

3 (bases 1 to 163031)
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Sequence Data
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AC024947
AC024947.4 GI:9887599
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mmalia; Eutheria; Primates;
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/db_xref="taxon:9606"
/chromosome="01"
/clone="rep11-200110"
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                            tttgggaagaggaaaattcagataatctgttaacagcgtttttctcgtccccttcaactt
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Pred. No. 1.3e-216;
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The sequence of Homo sapiens clone unpublished
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Waterston,R.H.
Direct Submission
Submitted (12-JUN-1998) Genome Sequencing Center, Washington
University School of Medicine, 4444 Forest Park Parkway, St. Louis,
MO 63108, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
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1480: gap of unknown length
3664: contig of 1584 bp in length
3082: gap of unknown length
4710: contig of 1628 bp in length
4728: gap of unknown length
6530: contig of 1802 bp in length
6547: gap of unknown length
6547: gap of unknown length
16448: gap of unknown length
16429: contig of 9882 bp in length
16480: gap of unknown length
16480: contig of 147443 bp in length
                                                                        43.0%; Score 1194.2; DB 2; Length 163889; 99.7%; Pred. No. 1.1e-216; tive 0; Mismatches 3; Indels 0; G
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   Nishikawa,T., Nagai,K., Sugano,S., Aotsuka,S., Yoshikawa,Y., Matsunawa,H., Ishii,S., Kawai,Y., Saito,K., Yamamoto,J., Wakamatsu,A., Nakamura,Y., Nagahari,K., Masuho,Y. and Sasaki,N. NEDO human cDNA sequencing project
                                                                                                                                                                                                                                                                                                                                                                                                                                               Submitted (23-AUG-2000) to the DDBJ/EMBL/GenBank databases. Takao Isogai, Hellx Research Institute, Genomics Laboratory; 1532-3 Yana, Kisarazu, Chiba 292-0812, Japan (E-mail:genomics@hri.co.jp, Tel:81-438-52-3952)

NEDO human cDNA sequencing project supported by Ministry of International Trade and Industry of Japan; cDNA full insert sequencing: Research Association for Biotechnology; cDNA library construction, 5'. & 3'-end one pass sequencing and clone selection: Helix Research Institute (supported by Japan Key Technology Center etc.) and Department of Virology, Institute of Medical Science,
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             Unpublished (2000)
2 (bases 1 to 2276)
Isogai,T. and Otsuki,T.
Direct Submission
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Homo sapiens teratocarcinoma cell_line:NT2
clone_lib:NT2RP2 clone:NT2RP2004396.
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/clone_lib="NT2RP2"
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unordered pieces. AC091341 AC091341.1 GI:13661907 AC091341.1 GI:13661907

Eukaryota; Metazoa;

Chordata;

Craniata;

Vertebrata;

Rattus norvegicus Norway rat. Rattus norvegicus unordered pieces.

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clone dq

DNA CH230-1C19,

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                                                                                                                            Center project name: TUCU

Center clone name: CH230-1C19

Sequencing vector: Plasmid: M77789

Sequencing vector: M13; L08821

Sequencing vector: M3; L08821

Chemistry: Dye-terminator Big Dye: 67% of reads

Chemistry: Dye-terminator Big Dye: 67% of reads

Assembly program: Phrap: version 0.990329

Consensus quality: 23627 bases at least Q40

Consensus quality: 245439 bases at least Q30

Consensus quality: 245439 bases at least Q20

Estimated insert size: 222874; sum-of-contigs estimation

Quality coverage: 5x in Q20 bases; sum-of-contigs estimation

Quality coverage: 5x in Q20 bases; sum-of-contigs estimation
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NOTE: Estimated insert size may differ from sequence length (see http://www.hgsc.bcm.tmc.edu/docs/Genbank_draft_data.html).
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Web site: http://www.hgsc.bcm.tmc.edu/
Contact: hgsc-help@bcm.tmc.edu
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                                                                             Submitted (21-DEC-1999) Department of Genetics, Washington University, 4444 Forest Park Avenue, St. Louis, Missouri 63108, On Dec 2, 1998 this sequence version replaced gi:2588622.
                                                                                                                                                                                                      Direct Submission
Submitted (02-DEC-1998) Department of Genetics, Washington
University, 4444 Forest Park Avenue, St. Louis, Missouri 63108, USA
5 (bases 1 to 136823)
                                                                                                                                                                                                                                                                                                      Direct Submission
Submitted (15-JAN-1998) Department of Genetics, Washington
University, 4444 Forest Park Avenue, St. Louis, Missouri 63108, USA
4 (bases 1 to 136823)
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Submitted (06-NOV-1997) Department of Genetics, Washington
University, 4444 Forest Park Avenue, St. Louis, Missouri 63108, USA
3 (bases 1 to 136823)
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Homo sapiens BAC clone CTB-60N22 from 7q21, complete sequence.
AC003083
AC003083.1 GI:3947435
                                                                                                                                                                Direct Submission
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Mammalia; Eutheria; Primates; Catarrhini; Hominidae; Homo.
1 (bases 1 to 136823)
Kellen, J., Smith, A. and Gibson, A.
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Web site: http://genome.wustl.edu/gsc
Contact: sapiens@watson.wustl.edu
                                        Center: Washington University Genome Sequencing Center Center code: WUGSC
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Center project name: H_RG060N22
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NOTICE: This sequence may not represent the entire insert of this clone. It may be shorter because we only sequence overlapping clone sections once, or longer because we provide a small overlap between neighboring data submissions.

This sequence was finished as follows unless otherwise noted: all regions were double stranded or sequenced with an alternate chemistry; an attempt was made to resolve all sequencing problems, such as compressions and repeats; all regions were covered by sequence from more than one subclone; and the assembly was

The sequence of this clone was established as part of a mapping and sequencing collaboration between the NHGRI Chromosome 7 Mapping Project (Eric D. Green, Director), John D. McPherson in the Department of Genetics (Washington University), and the Washington University Genome Sequencing Center. For additional information about the map position of this sequence, see http://www.nhgri.nih.gov/DIR/GTB/CHR7, send

Clone CTB-60N22 is from the first release of the human BAC library CITB-9788K-B. The library contains cloned DNA from the male fibroblast cell line 9788K. See: Shizuya et al., Proc. Natl. Acad. Sci. USA 89:8794-7 (1992); U-J. Kim et al., Genomics 34:213-8 (1996). This clone is available from Research Genetics, Inc.

NEIGHBORING SEQUENCE INFORMATION:
The clone sequenced to the left is CTB-135C18, 200 bp overlap: The clone sequenced to the right is CTB-60P12, 200 base overlap.
Actual start of this clone is at base position 81036 of CTB-135C18; actual end is at 3662 of CTB-60P12.

Location/Qualifiers

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Tpt_
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009461 (PID:g2497990); H_RG060N22.1"
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41977. .42089)
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                                                                                                                                                                                                                                                                                                                                                                                   TTTGTGCTTTTGCGCCTTCCTCCTCCGCGCCTTGGAGCCGGATCCGGCCCCGGAAACCCGA
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557; Conser
                                                                                       Sequence
AX070167
Mammalia; Eutheria;
1 (bases 1 to 685)
                                    Homo sapiens
                                                                           AX070167.1
                                                                                                                AX070167
                         Eukaryota;
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SKLGENETCIPLVAGIVAREGAVTVISSELELIFYKMQSKKESVEELHREVSKKYSEDG
WISLMRGWAPTVLRDVPESAMYWYNEILKKWLCEKSGLYEPTFMINETSGALSGSFA
AVATLPEDVVKTQKQTQLWTYESSIKISWPLHMSTWIIMKNIVAKNGESGLFSGLIPRL
AVATLPEDVVKTQKQTQLWTYESSIKISWPLHMSTWIIMKNIVAKNGESGLFSGLIPRL
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26037. .26030
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25741. .26036
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           /rpt_family="Alu" 24328. .25740
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         rpt_family="L1"
                         Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi;
                                                                         GI:12579952
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                                                                                                bp D
Patent
             Primates; Catarrhini;
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); Mismatches
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                                                                                                    WO0102568
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              Hominidae;
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CDS

25-JAN-2001

1579

1639

repeat\_region repeat\_region repeat\_region

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RESULT 1
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Matches 560;
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         918 tgtgtttaagcagaggaaaattattagttgaaaaagctatcaaggaccatgattttattc 977
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           481 ACATTAGATACTACATTGAACANAAGAAAAAGAGNT--GATTTACTCACGAA--TCANGA 536
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   421 CTTCAAATAGTATATTATCAAATGCCTTGTCATGGNGAGTANAAATTCTTCATATTGATG 480
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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   williams,L.T., Escobedo,J., Innis,M.A., Garcia,P.D., Klinger,J., Kassam,A., Reinhard,C., Randazzo,F., Kennedy,G.C., Pot,D., Lamson,G., Drmanac,R., Crkenjakov,R., Drmanac,S., Dlokson,M., Labat,I., Leshkowitiz,D., Kita,D., Garcia,V. and Strache-Crain,B. Human genes and gene expression products Patent: wo 0102568-A 639 11-JAN-2001; CHIRON CORPORATION (US); HYSEQ, INC. (US)

CHIRON CORPORATION (US); HYSEQ, INC. (US)

1. 685
                                                                                     ACO74175 177899 bp DNA HTG
MUS musculus chromosome 5 clone RP23-348811
WORKING DRAFT SEQUENCE, 15 unordered pieces.
ACO74175. GI:9211286
ACO74175. GI:9211286
HTG: HTGS_PHASE1; HTGS_DRAFT.
                               Mus musculus
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/db_xref="taxon:9606"
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127 c 125 g
Metazoa;
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Beckstrom-Sternberg.S.M., Benjamin,B., Blakesley,R.W., Bouffard,G.G., Dietrich,N.L., Eagle,W.O., Gupta,J., Ho.S.-L., Huang,M.C., Idol,J., Lee-Lin,S.-Q., Maduro,Q.L., Maduro,V.B., Mastrian,S.D., McCloskey,J.C., Ojodu,M.A., Pearson,R., Stantripop,S., Summers,T.J., Thomas,J.W., Trans,J.T., Vogt,J.L., Walker,M.A., Metherby,K.D. and Green,E.D. Wetherby,K.D. and Green,E.D.
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Submitted (15-JUL-2000) NIH Intramural Sequencing Center, 8717
Grovemont Circle, Gaithersburg, MD 20877, USA
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    NISC Mouse Sequencing Initiative
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          consists of 15 contigs. The true order of the pieces is not known and their order in this sequence record is arbitrary. Gaps between the contigs are represented as runs of N, but the exact sizes of the gaps are unknown. This record will be updated with the finished sequence
                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        Center project name: vc.

Center clone name: 348B11

Sequencing vector: plasmid; n/a: 100% of reads sequencing vector: plasmid; n/a: 100% of reads chemistry: Dye-terminator Big Dye: 100% of reads Assembly program: Phrap: version 0.990319

Consensus quality: 171094 bases at least Q30 consensus quality: 172951 bases at least Q30 consensus quality: 174122 bases at least Q30 consensus quality: 174122 bases at least Q20 Insert size: 202000: pulse-field-gel Insert size: 202000: pulse-field-gel Insert size: 176499; sum-of-contigs Quality coverage: 4.50x in Q20 bases; sum-of-contigs Quality coverage: 4.50x in Q20 bases; sum-of-contigs Quality coverage: 5.16x in Q20 bases; sum-of-contigs
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Contact: nisc_mouse@nhgri.nih.gov
------ Project Information
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2463: contig of 2463 bp in length
4563: gap of unknown length
4867: gap of unknown length
4867: gap of unknown length
8897: contig of 3530 bp in length
8897: contig of 3530 bp in length
13167: contig of 4670 bp in length
13167: contig of 4670 bp in length
13190: gap of unknown length
1790: contig of 4523 bp in length
17990: gap of unknown length
17990: gap of unknown length
23556: gap of unknown length
23556: gap of unknown length
23556: gap of unknown length
43570: contig of 5466 bp in length
43571: gap of unknown length
44567: gap of unknown length
44567: contig of 11468 bp in length
45679: gap of unknown length
45679: contig of 11792 bp in length
56459: contig of 11792 bp in length
56559: gap of unknown length
72129: contig of 15570 bp in length
72129: contig of 15570 bp in length
187973: gap of unknown length
188973: gap of unknown length
188936: contig of 20863 bp in length
188936: contig of 15700 bp in length
188936: contig of 20863 bp in length
188936: contig of 20863 bp in length
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Best Local Similarity 64.3%;
Matches 779; Conservative
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                                                                                                    tcctgtttatttcagagcccatcccccccccttcaaatgaattgagagggcttaatgaga
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                            -CAGGAAACCAGTGAGCATGTTCAATGCAAGTGAGCCTGACCCAGAGCAGGAGTATG
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44668. .56459
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87974. .108836
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/note="assembly_fragment clone_end:SP6"
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108937. .130636
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                         aaaaaaaaaaaa 2769
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TAAAAATGAATA 100157
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